

THE BLIND CHILD IN THE WORLD OF NATURE

by

Dorothy Dean Sheldon

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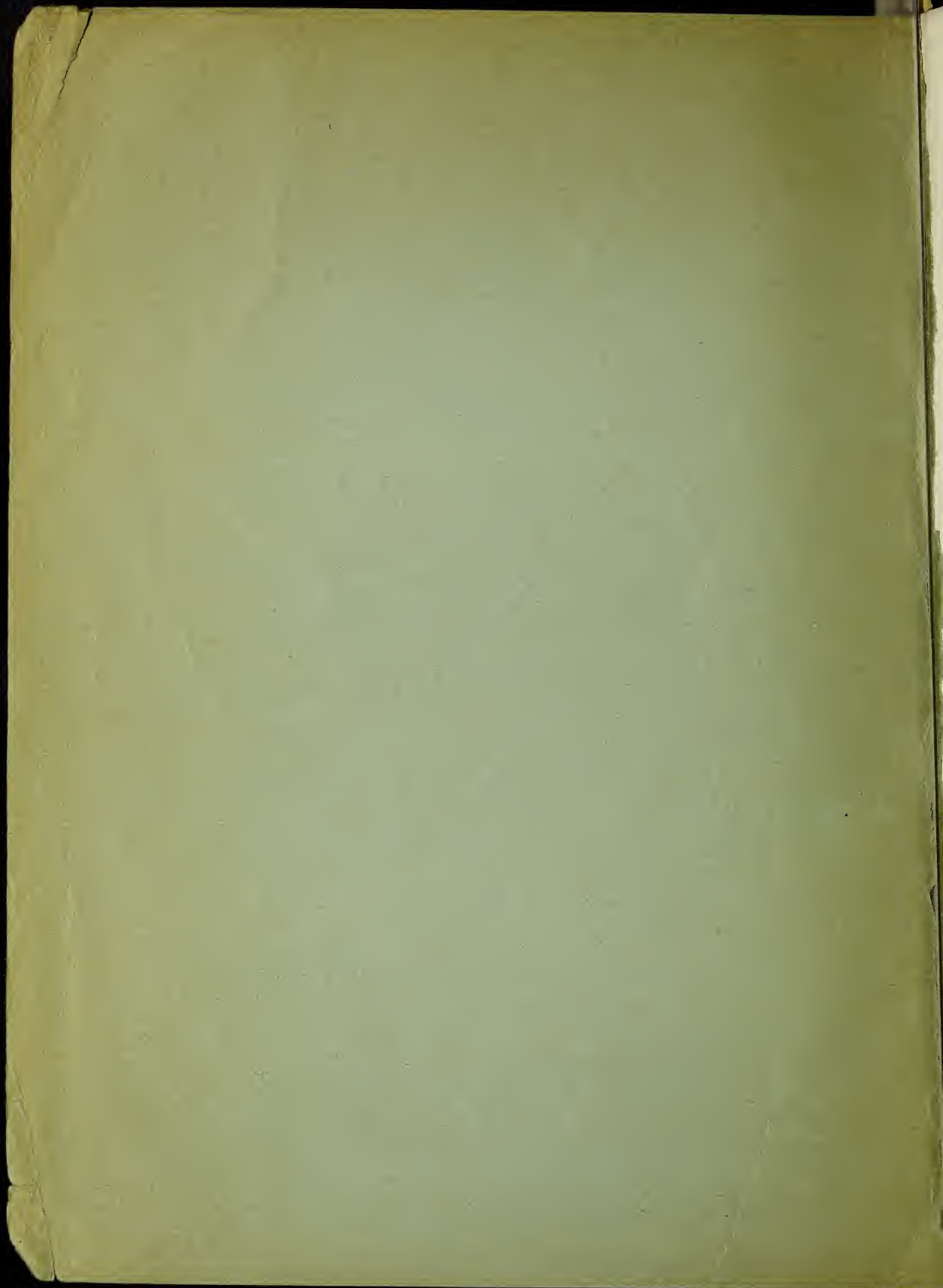
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THE BLIND CHILD
IN THE
WORLD OF NATURE



THE REPORT OF A STUDY
MADE IN THE SPRING OF 1929
BY DOROTHY DEAN SHELDON

Foundation for the Blind

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GETTING ACQUAINTED WITH NATURE; MRS. SHELDON AND TWO OF HER PUPILS

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THE BLIND CHILD IN THE WORLD OF NATURE

A REPORT OF A NATURE STUDY PROJECT CONDUCTED
IN THE DEPARTMENT OF SPECIAL STUDIES
AT PERKINS INSTITUTION FOR THE BLIND -

By

Dorothy Dean Sheldon

EDUCATIONAL PUBLICATIONS, SERIES II, NUMBER 3

AMERICAN FOUNDATION FOR THE BLIND

125 EAST 46TH STREET

NEW YORK

November, 1929

Spring Has Come!

Spring has come with birds and flowers,
All the world is bright and gay.
Buds have bloomed on twigs and bowers,
And the birds sing all the day.

Winter's gone with all its sadness
And once more is song and cheer.
Spring has come with all its gladness
And the little flowers appear.

Now, my children large and small
Don't you think it right
To praise the Giver of them all,
With all your heart and might?

Stephanie Mierzewski.
Age: 13 years.

THE BLIND CHILD IN THE WORLD OF NATURE

By DOROTHY DEAN SHELDON

THIS is the story of an investigation into the best means of adapting nature study materials so as to arouse for it the same interest and enthusiasm among blind children as is experienced among those with full sight.

Toward the end of 1928 a request came from Dr. Bertha Chapman Cady, of the Coordinating Council on Nature Activities, followed by one from the American Foundation for the Blind, that I undertake the work of adapting the Girl Scout Nature Study program so that it might be used by and with blind pupils, without regard to sex or to Scout affiliations. I accepted this opportunity of helping blind children to learn and appreciate something of the wonder and beauty of the natural world.

After weeks devoted to the rearranging of nature lessons which I knew to be of interest to seeing children, I finally decided that this was too theoretical a procedure, that the only practical course was to work out the program step by step with the children. At Perkins Institution for the Blind, in Watertown, Massachusetts, there is an experimental primary school, known as the Department of Special Studies and conducted jointly by Perkins and the Foundation. It was in this Department that I was able to conduct a regular series of nature study groups—groups from which I learned those fundamentally important facts about the minds of children without sight (or with very little) upon which must be based any satisfactory adaptations of material which has first been arranged for those with vision.

Since the groups of available children were from seven to eleven years of age, it was impossible to follow the Girl Scout program, which is planned for girls from ten to eighteen years of age. The aims of the Scouts, however, were used as the guiding principles in the classes. There were three groups of girls and one of boys, the sight of the children varying from enough for a visual study of the objects to a total lack of even light perception. It is interesting to note that the alertness of the youngsters varied from keen enthusiasm to merely passive interest quite obviously in accordance with their mental ability.

During March, April, and May each class had a weekly half-hour lesson. The short period available made it necessary to concentrate the study upon one or two significant thoughts that would kindle the interest and arouse the curiosity of the child during the following week. The limited time also accounts for the rather unrelated topics of study selected for each lesson. Since Perkins offered the use of its natural history museum many of the lessons were based upon the splendid specimens at our disposal. Poor weather conditions forced us to hold most of the classes indoors.

We feel, however, that despite many handicaps the experiment has shown that nature study has a large contribution to make to the educational program of the blind. Just this "scratch on the surface" has revealed the vital interest in living things that lies dormant within the mind of every child, whether blind or seeing.

This report is necessarily rather personal, and most informal for the purpose of better expressing the real spirit and response which measure the success of the nature classes.

THE aim of the Girl Scout Nature Program is three-fold: (1) to offer opportunities for individual observation of real things in their natural environment; (2) to stimulate the interpretation of what is observed; (3) to inspire greater appreciation of all that the out-of-doors has to offer. By showing the relation of commonplace utilities to their natural source we open up a new world of interest—that pearl button on your blouse comes from a fresh water clam in a western river—the cotton of your dress once grew in a green pod down South—the silk in your hair ribbon was spun by a silk worm in Japan—the wool in your stockings grew on the back of a sheep roaming over some western hill—the sponge that you use every morning is the horny skeleton of a water animal.

Is this sort of practical and vital, yet fascinating knowledge furnished by any other branch of the curriculum in most schools for the blind?

First hand experience is the surest way to lasting knowledge. John Dewey once said, "True education is sharing life." When a child shares the life of an animal by observing its daily habits of living he becomes truly educated in regard to the object of his interest. This, then, is the basis for our plan of nature study: to help each child to share the life of each bird, tree, fish, or flower, by learning of its methods of solving its life-problems and of its contribution to the larger life of the world.

 OUR first lesson was spent in drawing out the interest of the children:

"For hundreds and hundreds of years human beings all over the world have found health and happiness in making friends of the birds, flowers, trees, and all the countless others of Mother Nature's children. (Here is told the story of the quest for weeds and flowers in order to bring out the truth that 'what you look for you will surely find; seek the beautiful and you will find it; seek the ugly and you find it!') Spring is the time of nature's awakening and the best part of the year in which to begin to seek beauty out of doors, although every season brings its gifts to those who are ready to receive them. The buds on the trees are waiting for the warm spring sunshine before they burst open and unfold their lovely leaves. Do you know what part the leaves play in the life of the plant? They are the kitchens where the food for the plant is cooked by the heat of the sun! The roots, divided into countless rootlets and fine hairs, spread out through the ground drawing into themselves the food-containing water which they carry up to the stems, thence out to the leafy

kitchens. Here, bits of green substance working with sunlight prepare the food for storage. In some plants the starch thus formed is taken down into the ground and stored away in bags. In the fall, when the food-making season is over, the leaves dry up and the farmer knows that it is time to dig up the brown bags of starch—and we eat them for dinner!”

“Potatoes!” called out all the children, after following the story with obvious interest registered on their happy faces.

“Yes—but do plants always use *brown* bags in which to store away the food?”

“No,” came the chorus. “Carrots are pretty orange bags.—Radishes are little bright red bags.—Turnips are sometimes yellow, and sometimes purple and white bags.—Tomatoes are red bags of food that hang on the plants *above* the ground.—Grapes are lovely little blue bags on vines.”— And thus the suggestions came, showing that the elementary process described had taken root within their understanding.

From this lesson I learned that color is *not* a subject to be avoided in teaching blind children, since it is a factor which fascinates many an unseeing child. Then, too, there are those who, although they have not sufficient sight to perceive forms, yet have some slight realization of light and color. However, color should be one of the interesting incidentals of the lesson rather than the foundation upon which it is based.

THE night before our second lesson a blanket of snow fell. The weather proved to **I** be of great interest to these blind children—snow or rain falling from the sky kindled the imagination.

I decided to have snow-flakes for the day’s central lesson theme. I cut out of paper a number of different six-pointed star patterns, each of them about two inches in diameter, showing the general plan to be found in the formation of snow crystals. We went outdoors and picked up handfuls of the light, sparkling snow (several children noticed the sparkling of the sunlight on the snow). It was light, soft, and cold.

“Each grain is about the size of a grain of sugar. If we could make it many times larger than it is, we should find it to be beautifully designed—a six-pointed star, something like these paper patterns—and shining like crystals.”

“Mrs. Sheldon, what is a crystal?”

“Well—when something has been dissolved in water and the water dries out, what is left takes solid form of a certain shape, always at the same angle, whether large or small. When the water vapor in the clouds freezes it forms snow crystals which are very light because of the tiny air tunnels which makes the angles. When they

are formed in the coldest, highest clouds, the flakes have only three points, but usually these *Winter Daisies* are six-rayed stars."

The reaction to this lesson was poetic; two little girls expressing it as follows:

- (1) "The snow is like a jewel—
So clear, white and cool
It comes from the clouds
In crowds and crowds.
When the sun shines on the snow
It looks like diamonds, you know."
- (2) "I saw something fall
It was very small—
A snowflake from the sky—
A pure white butterfly!"

FOR lesson three, on Birds, we had several types of bird houses. We talked about the birds that like to stay with us all winter instead of going south—the blue jay, the crow, the nuthatch, the woodpeckers, the sparrows, and the cheery little chickadee, with his scoldy song, "Chick-a-dee-dee-dee," and his happy little love call "Phoe-bee." After I imitated this last plaintive call, one child said, "That's a minor tone." "We can attract birds to our own yards if we make living conditions favorable for them. First of all, we must protect them from prowling cats. Then when the snow and ice cover their winter food of berries and insect larva, we must supply them with substitutes, such as grain, bread crumbs, hemp and sun-flower seeds, nut meats and suet for warmth. Soon they will begin to look for a place suitable for their homes. The woodpeckers will take to the hollow trees, but many other birds would like to find houses put up for them, about ten feet from the ground, partly shaded, facing away from the cold winds. They must have water—a shallow bird bath, not more than four inches deep, gives them daily comfort and pleasure. The birds soon learn of your friendliness and spread the news among their many friends who will join in making your yard ring with their happy songs—and, incidentally, they will eat up all of the harmful insects that might otherwise destroy your plants."

OUR Easter lesson was three-fold, centered on the thought of finding beauty within the earth. The materials used were: a geode; some cocoons and moths; some lily bulbs and full grown plants with buds and blossoms. A *geode* resembles an ordinary round rock except that it is light in weight. When it is opened it discloses a beautiful, crystal lined chamber within. Once there was a cavity in surrounding sandstone, or limestone; as water soaked through the rock, carrying minerals in solution, it filled the cavity and deposited the mineral crystals on its walls. This mineral lining is of much harder substance than the surrounding rock, which gradually wore away leaving the geode, rough and dull on the outside, but clear and shining within.

The giant Cecropia Moth, with a wing-spread of over six inches, is one of our American silk worms. Its cocoon, shaped like a tiny cradle, hung close below a branch, may be found in almost any orchard. It is made of two walls of finely woven silk separated by a loose inner padding of silk, with a tiny opening in one end through which the moth can emerge in the spring. The caterpillar has to make itself much smaller if it is to fit into the small inner chamber of its cocoon where it is to sleep all winter, and so it sheds its skin and becomes a small, oval smooth brown pupa for this stage.

Let's consider the life history of a Cecropia Moth. When the caterpillar is first hatched from her tiny egg she is about a quarter of an inch long, black, covered with little spines. She eats for about four days, until her black coat is too small. Then she splits it open and comes out in an orange coat with black spines. Again she eats and eats for about six days until that coat is too small, and then she splits it and appears in a yellow coat with spines of blue, red, green, yellow, and black! After eating for about six more days she sheds that gay coat and comes out in a bluish-green covered with beautifully colored spines—orange, yellow, and blue!

Now she is about three inches long and an inch thick! She continues to eat for about two weeks more, then begins her wonderful silk cocoon, from a gland opening in her lower lip, producing a very strong kind of silk. As she nears the center of her winter cradle she changes into the small pupa and sleeps until in the spring when the leaves are large enough to supply food for her future hungry baby caterpillars. Then she comes out, spreads her wings to dry, flies off and lays her eggs on some tree that will satisfy the taste of her children. In the moth stage she does not need to eat any more food; she ate enough during her caterpillar stages to last through her whole life! What an Easter miracle—transforming a creeping creature of the earth into a winged bit of beauty in the air!

Another miracle is the growth of an Easter lily plant from a tiny brown bulb, through the stages of sprouting roots and tiny shoots up to the tall stems bearing the buds and blossoms. One girl said, "I don't see how this lovely big plant *could* come from one of these tiny bulbs." Another was inspired to *make a riddle*—"Why is an Easter lily like a snowflake?" I could not guess! "Because they are both white, both are six-pointed stars, and God made them."

At another time we made a comparative study of hens and ducks, using stuffed specimens of chicks, ducklings, and the full-grown birds. I asked the children to put their hands behind their backs as if they were tied there.

"Now, suppose that you had to get all your food without using your hands! That's what the hens and ducks have to do! Let's see how Nature helps them use their beaks and feet for this purpose.

"The hen is a good runner and a digger in the soil. Her claws are long, strong,

hooked, and covered with protecting scales. Hens and ducks have the same number of toes, three facing forward and one in back, but connecting skin between the toes of the ducks makes them web-footed. Their fan-shaped feet serve a double purpose for these water animals: they act as paddles for swimming and their flatness keeps the ducks from sinking into the soft shore mud. They cannot dig in the ground nor run like hens because their legs are shorter, set wide apart and farther back—in swimming it is handy for them to have their paddles on the sides. No wonder they have to waddle when they try to walk on land! But hens would look just as funny if they tried to swim! Ducks squat on the ground to sleep, but hens roost on a branch or rod.

"The bills of hens and ducks are very different. As the hen eats seeds and insects from the ground, she needs to have a strong, horny, sharp pick with which to procure her food. Her beak meets this need after she has scratched away the grass on the surface with her sharp claws. The hen has no teeth; she seizes her food with her beak, swallows it, and the chewing is done by the grinding stones in her gizzard!

"The duck's bill is broad, flat, and softer than the hen's beak. She eats water plants and insects which she catches by *ducking* her head under the water, holding the food until the water drains out through the strainers at the edges of her wide, flat bill. Both hens and ducks use their beaks to clean and oil their feathers, to turn over their eggs during incubation, and as an aid to their feet in building their nests."

THE fresh water mussels and the pearl button industry formed the basis for another lesson. I obtained from the C. M. Howell button factory in Waltham, Massachusetts, several varieties of fresh water clam shells, commercially known as *muckets*, *three ridges*, and *pimple backs*—some shells full of holes left after the buttons had been cut, some round, rough, unground pieces, a few ground buttons before the holes had been punched, and some of the finished pearl buttons. They also gave me one of the tiny round saws used in the machine for cutting the buttons from the shells.

I placed one of each of the five stages of manufacture before each pair of children, asking them to consider them for a few minutes, or until they had formed a story relating the different objects before them. Before two minutes had passed several girls offered the information that "these are clam shells, these are buttons, they must have come out of these shells. Our dress buttons probably came from clam shells like these."

"Yes, that's the story! These fresh water clams are found in most inland rivers of any size. The animals that live in the shells are not good to eat but pearls of considerable value are often found in river clams.

"The life history of a clam is a thrilling one! The tiny eggs, no larger than grains of sand, are hatched in the brood pouches of the mother's gills into minute creatures

with two part shells. They are kept here, fed by a nutritious substance in the outer gill of the parent, until they are over six months old. Two strong, saw-toothed hooks are formed at the mouth of the tiny open shells, with a thread-like cord coiled between them. When the food in the gill is all gone the tiny creatures are cast off into the water. Woe to those that fall on soft, muddy river beds, for they will probably be smothered and die! But if the floor of the river is not too soft they lie there with their hook-laden cords floating upward until a fish comes near enough for them to attach themselves to it by means of their little hooks. Thus, unless they succeed in 'hooking rides' on a passing fish they will probably perish! A fluid from the skin of the fish covers the tiny clams and thus supplies the food essential for completing the growth of their vital organs. This done, the mussels leave the fish, fall to the river bottom where they obtain food from the surrounding water and slowly increase the size of their pearl-lined shells until they are large enough and strong enough to make several buttons for little girls' dresses or for little boys' shirts!"

THE other lesson subjects were: (1) Rodents—rabbits and hares, porcupines, rats and mice, beavers, squirrels; (2) Some animals in our woods—cotton-tail rabbit, fox, muskrat, and chipmunk; (3) Seal industry—fur seal, hair seal, sea lion; (4) Caddis flies and their portable houses. I'll not describe these in detail.

WHEN Nature Study is made a part of the regular program in every school for the blind, adequate time will be available for many different projects and phases of instruction. There are many fascinating nature games which help to crystallize the information given during the lessons. Nature poems, songs, plays, and treasure hunts are all helpful mediums for the nature teacher. Most of these can be adapted for use with blind children very satisfactorily.

Mr. John D. Smith, of the Museum of Natural History in Boston, is preparing splendid specimens (celluloid models) for the Perkins nature study classes—specimens showing the life history of the toad and the frog, for instance.

Records of the bird-whistling of Edward Avis, produced by the Columbia Phonograph Company, are valuable aids in teaching children the various bird calls. The establishing of local bird-feeding stations increases the opportunities for first-hand observation of the habits of birds. The principle of conservation is unconsciously instilled within the minds of children when they are allowed to plant trees, ferns, and wild flowers. The Audubon Societies throughout the country form a helpful source of material for the study of birds.

Other valuable aids are: The Book of Knowledge Lesson Series (edited for the schools by Ellis C. Persing, Cleveland School of Education); The Comstock Handbook of Nature Study, with the outlines for observation in the field; Mrs. I. N. Gaylord's Nature Study Department in the "Journal of the Outdoor Life," published monthly by the National Tuberculosis Association, 370 Seventh Avenue, New York;

the Girl Scout Nature Study Projects, for "teen age" children. Of course, all of these must be adapted for the use of blind children.

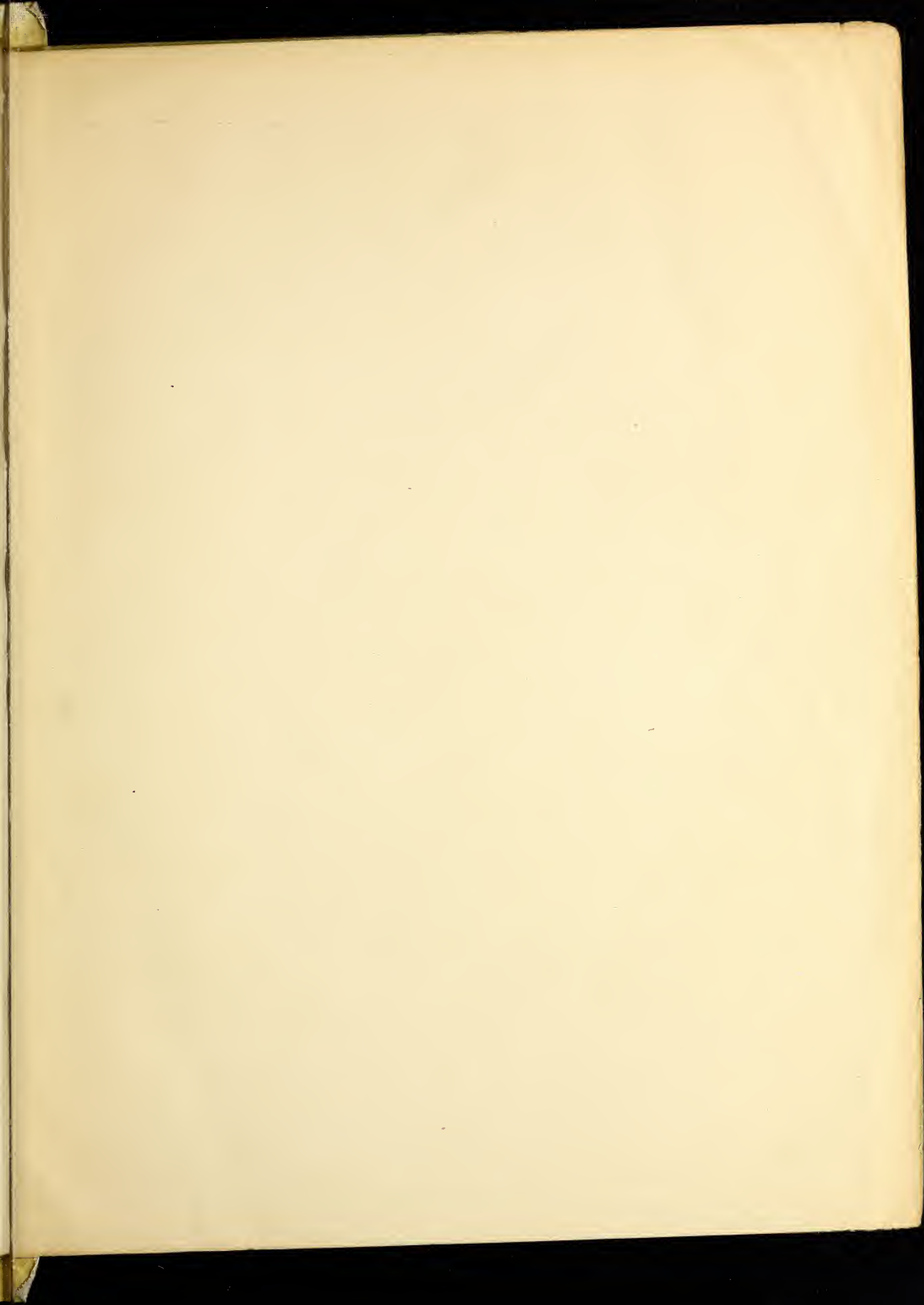
THROUGH the courtesy of the Children's Museum of Boston, Miss Pearl Bragdon, Mrs. Frieda Kiefer Merry, and members of the Perkins staff have collected a very helpful set of lessons which were compiled for use with school classes at the Museum by Mrs. Inez Harlow and her predecessors. These are to be adapted for use with blind children. The following are a few of the subjects selected: (1) Bird Families; (2) The Grasshopper: Musician, Monster, and Aviator; (3) Frogs and Toads; (4) How Birds and Squirrels Live in Winter; (5) Plants Used in Medicine; (6) Birds That Earn Their Living; and (7) The Beaver's Breakfast.

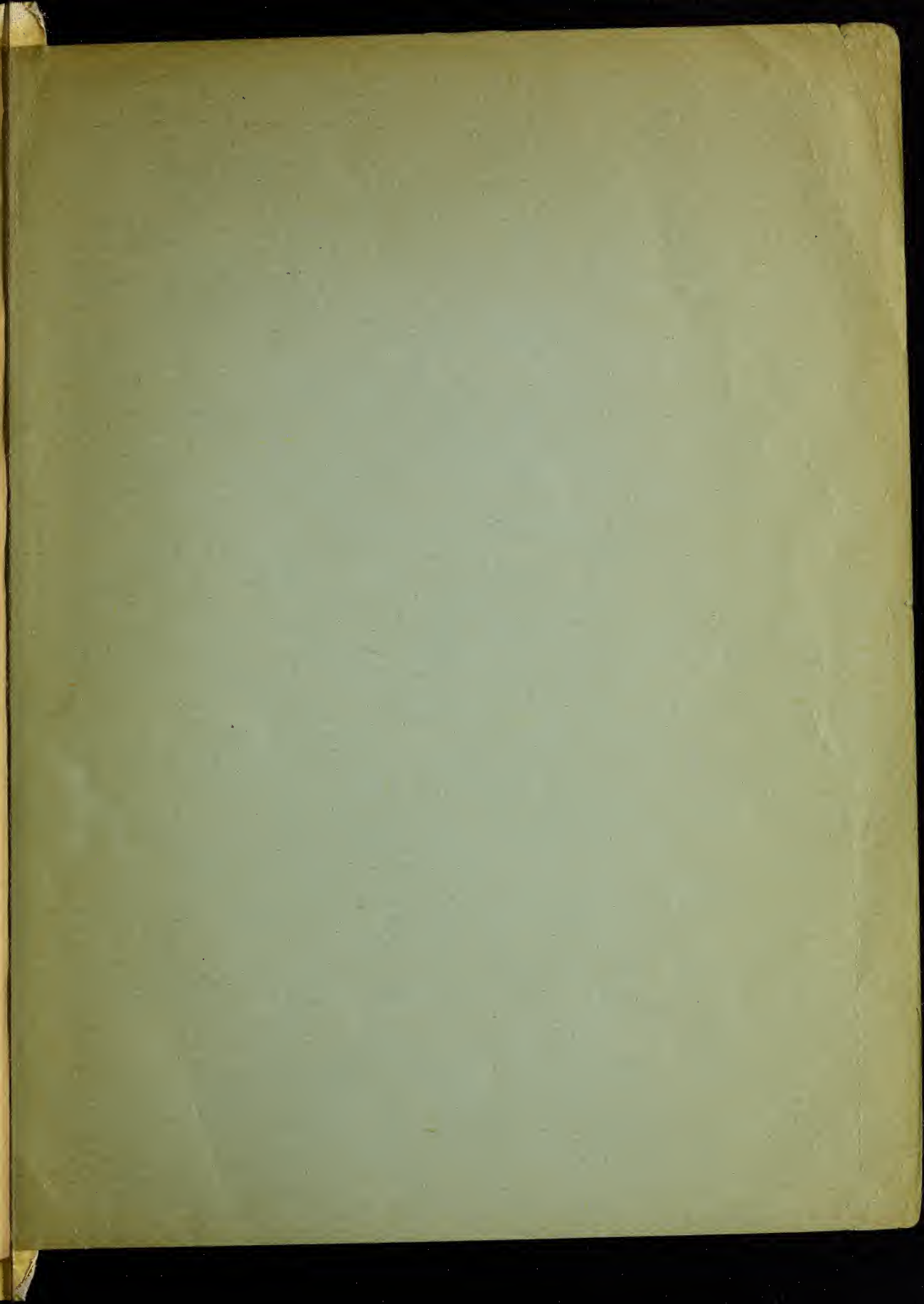
Those who have observed the enthusiastic and intelligent response of the nature classes in the Department of Special Studies this spring are convinced that more of this type of instruction deserves a place in the regular program of schools for the blind. To open the door that leads to a deeper appreciation of the natural beauty in the world and its relation to our everyday living is to increase many fold our opportunities for real enjoyment. If every day we try to find some new beauty, we shall say at each sunset, with Sara Teasdale—

"Into my heart's treasury
I slipped a coin
That time cannot take
Nor thief purloin—
Oh! better than the minting
Of a gold-crowned king
Is the safe-kept memory
Of a lovely thing."

EDITOR'S NOTE

For the initiation of the Nature Study Program in the Department of Special Studies, Perkins and the Foundation have been fortunate in obtaining the volunteer services of Mrs. Frank M. Sheldon (Dorothy Dean) who has for a number of years been actively identified with the Girl Scout movement in Massachusetts. Mrs. Sheldon is not only a lover of nature but is also a lover of children—and a genuine teacher. Although it was necessary for her to change her original plan of immediately adapting the Girl Scout Nature Manual she has not dropped it from her schedule. Mrs. Sheldon plans to continue working closely with the Department during the school year 1929-30. Our thanks are due to Dr. Bertha Chapman Cady for suggesting Mrs. Sheldon.





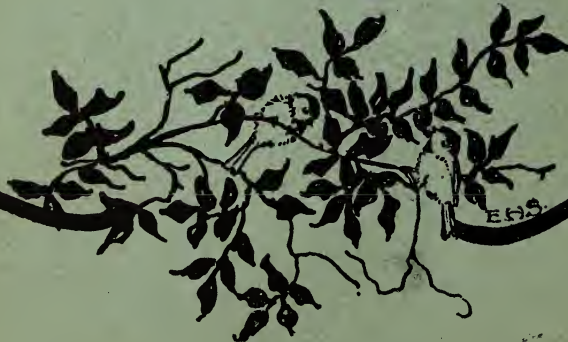


The Chickadee

All the birds are gone away
In their southern homes to stay,
But yet you may hear
The voice of some little dear
Singing, "Chick-a-dee, chick-a-dee, chick-a-dee."

Up in the old apple tree .
When we are in our winter coats
You may hear his bright and cheery notes
Singing, "Chick-a-dee, chick-a-dee, chick-a-dee."

Fannie Correia,
Age: 10 years.



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